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10/576,507	04/17/2006	Ossi Kalevo	800.0346.U1(US)	6243

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EXAMINER
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CHU, RANDOLPH I

ART UNIT	PAPER NUMBER
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2624

MAIL DATE	DELIVERY MODE
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10/26/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/576,507	<b>Applicant(s)</b> KALEVO ET AL.	
	<b>Examiner</b> RANDOLPH CHU	<b>Art Unit</b> 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Response to Amendment***

1. In response to applicant's amendment received on August 16, 2010, all requested changes to the claims have been entered. New claims 16-20 have been entered.

***Response to Argument***

2. Applicant's arguments filed on August 16, 2010 have been fully considered but they are not persuasive.

Applicant's argue on page 14 of the response that the disclosure of Mutoh does not teach coarse scaling is simpler than fine scaling.

The examiner disagrees. The example of Mutoh have that coarse scaling have one operation ( $z1$ ) and fine scaling have two operation ( $ZZ/Z1$ ) therefore, coarse scaling in Mutoh is simpler than fine scaling.

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Applicant argue that Mutoh's The first processing way which is a high-order image processing and thus, for example, includes the jaggy processing and thereby, a smooth contour of a relevant image is obtainable as shown in FIG. 1 C, in comparison to a case of FIG. 1B which is obtained with a simple magnification processing and has a conspicuous jaggy phenomenon as mentioned above" (paragraph [0083], emphasis added). "the processing time required for executing image magnification processing in the first processing way (jaggy processing) is significantly larger then that in the second processing way (simple magnification).

The examiner disagrees. Jaggy processing in Mutoh is extra process that make image smooth, it is nothing to do with scaling. This process (extra process) makes the first processing way longer than the second processing way (simple magnification).

In addition nowhere in the specification of instant application described that "coarse scaling is simpler than fine scaling" only thing described by specification is "coarse stage is simple" (para [0028]).

Applicant's argue on page 15 of the response that the disclosure of Mutoh does not teach "receiving, from a first processor at a second processor, an intermediate matrix" and "fine scaling, by the second processor, the intermediate matrix"

The examiner disagrees. The claim does not require that the first processor and second processor are different.

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Applicant's argue on page 15 of the response that the disclosure of Mutoh does not teach that  $1/X$  is approximately  $Y/Z$ .

The examiner disagrees. If scaling(reduction) ratio is 1.05,  $Z1$  would be 1 and  $ZZ/Z1$  would be  $1/1.05$  ( $100/105$ ), therefore, Mutoh teaches  $1/X$  is approximately  $Y/Z$ .

### ***Claim Rejections - 35 USC § 112***

3. Claims 13 - 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

With respect to claims 13-15, the specification of instant application does define coarse scaling as in analog form. But, parent claim 1 scales original matrix to intermediate and intermediate matrix to final matrix. In context of the specification matrix can be read as digital image (abstract), and the specification does not describe how digital image scaling is done by analog.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

A. Claims 1, 3, 5, 6, 7, 12 and 16-20 are rejected under 35 USC 103(a) as being unpatentable over Mutoh (US 2004/0057634).

With respect to claim 1, Mutoh teaches receiving, from a first processor at a second processor, an intermediate matrix having a coarse scaling ratio  $1/X$  as compared to an original matrix (Fig. 17 ref label S72, S73 and S74, para [0152]), and fine scaling, by the second processor, the intermediate matrix by using a ratio  $Y/Z$  ( $ZZ/Z1$ ) to create a final matrix image having a scaling ratio  $R$  ( $ZZ$  at Fig. 17 Start) as compared to the original matrix (Fig. 17 ref label S74 and S75); where  $Y < Z$ , the scaling ratio  $R$  corresponds approximately to an equation  $Y/(Z*X)$ , and coarse scaling is simpler than fine scaling. (The embodiment of Fig 17 of Mutoh is a size change processing such as a magnification processing and size reduction processing or so (para [0150])). In example of paragraph [0152] is magnification example. It would be

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easy to modify the example of Mutoh to size reduction example of same scaling factor

8.4. Then, integer size-change portion would be 8 and Z1 would be  $\frac{1}{8}$ .

$$R = ZZ = \frac{1}{8.4} = Z1 \cdot \frac{ZZ}{Z1} = \frac{1}{8} \cdot \frac{\cancel{1/8.4}}{\cancel{1/8}} = \frac{1}{8} \cdot \frac{8}{8.4} = \frac{1}{X} \cdot \frac{Y}{Z}$$

However, Z is not an integer. But it is relatively easy to construct multiplication or division by integers.

$$\text{And, it would be } \frac{1}{X} \cdot \frac{Y}{Z} = \frac{1}{8} \cdot \frac{8}{8.4} = \frac{1}{8} \cdot \frac{80}{84}.$$

Also, coarse scaling ( $\frac{1}{8}$ ) is simpler than fine scaling ( $\frac{80}{84}$ ). And after coarse scaling, image size would be smaller, so that there requires smaller memory and computational requirement is reduced.)

At the time of the invention it would have been obvious to a person of ordinary skill in the art to substitute non integer scale factor as a ratio of integer in the method of Mutoh.

Accordingly, scale factors, even those that are not integers, can be easily applied by expressing the scale factor as a ratio of integer. It is easier to construct to divide and then multiply by integers to arrive at the required scale factor than to do calculation that scales by a non-integer amount.

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With respect to claim 3, Mutoh teach that integer X is selected to be as great as possible, according to the integers maximums selected for Y and Z and the selected scaling ratio R. (para. [0152]).

With respect to claim 5, Mutoh teach that  $1/X$  is approximately  $Y/Z$  (para [0150] – [0152], scaling rate is close to 1, then  $1/X$  is approximately  $Y/Z$ ).

With respect to claim 6, please refer to rejection for claim 1.

With respect to claim 7, Mutoh teach in that the apparatus is integrated in connection with the image sensor of a camera (para. [0148]).

With respect to claim 12, please refer to rejection for claim 1.

With respect to claim 16, Mutoh teaches that selecting a value of the ratio  $1/X$  for coarse scaling the original matrix so as to reduce a memory requirement and a computational requirement when fine scaling the intermediate matrix (In example of Claim 1 above, when scaling ratio is 8.4, ratio  $1/x$  is selected as  $1/8$ , so that intermediate matrix is much smaller compare to original matrix, so that computational requirement when fine scaling the intermediate matrix is reduced).



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With respect to claim 17, Mutoh teaches that selecting X, Y and Z so that Y/Z is greater than or equal to 1/2 and less than or equal to 1 (In example of Claim 1 above, when reduction scaling ratio is a.b, ratio 1/X is selected as 1/a, and Y/Z is a/a.b, so that Y/Z is greater than or equal to 1/2 and less than or equal to 1. see table below).

a.b	a		a/a.b
1.0	1		1
1.1	1		0.909091
1.2	1		0.833333
1.3	1		0.769231
1.4	1		0.714286
1.5	1		0.666667
1.6	1		0.625
1.7	1		0.588235
1.8	1		0.555556
1.9	1		0.526316
2.0	2		1
2.1	2		0.952381
2.2	2		0.909091
2.3	2		0.869565
2.4	2		0.833333
2.5	2		0.8
2.6	2		0.769231
2.7	2		0.740741
2.8	2		0.714286
2.9	2		0.689655
3.0	3		1
3.1	3		0.967742
3.2	3		0.9375
3.3	3		0.909091
3.4	3		0.882353
3.5	3		0.857143
3.6	3		0.833333
3.7	3		0.810811
3.8	3		0.789474
3.9	3		0.769231
4.0	4		1
4.1	4		0.97561
4.2	4		0.952381
4.3	4		0.930233
4.4	4		0.909091
4.5	4		0.888889

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4.6	4		0.869565
4.7	4		0.851064
4.8	4		0.833333
4.9	4		0.816327

With respect to claim 18, Mutoh teaches that receiving, at the first processor, the original matrix (Fig. 7 S72); coarse scaling the original matrix by using the ratio  $1/X$  to create pixels of the intermediate matrix (Fig. 7 S72 and S73), and

sending, from the first processor to the second processor, the intermediate matrix (Fig. 7 S73 to S74).

With respect to claim 19, please refer to rejection for claim 16.

With respect to claim 20, please refer to rejection for claim 17.

B. Claim 2 is rejected under 35 USC 103(a) as being unpatentable over Mutoh (US 2004/0057634) in view of Yamaguchi (US Patent 6,424,753)

Mutoh teaches all the limitations of claim 1 as applied above from which claim 2 respectively depend.

Mutoh does not teaches expressly that the second scaling is performed, after the first scaling, to the pixel group calculated for the intermediate matrix, without completing the calculation of the entire intermediate matrix.

Yamaguchi teaches parallel processing of scaling circuit (col. 11 lines 1-8).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to process scaling process in parallel in the method of Mutoh.

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The suggestion/motivation for doing so would have been that it would speed up the processing.

Therefore, it would have been obvious to combine Yamaguchi with Mutoh to obtain the invention as specified in claim 2.

C. Claim 4 is rejected under 35 USC 103(a) as being unpatentable over Mutoh (US 2004/0057634) in view of Kamon (US Patent 4,827,433)

Mutoh teaches all the limitations of claim 1 as applied above from which claim 4 respectively depend.

Mutoh does not teaches expressly , in the first scaling the integer X is selected to be as greatest as possible as the power of two.

Kamon teaches in the first scaling the integer X is selected to be as greatest as possible as the power of two. (col. 29 line 61- col. 30 line 7).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to process scaling process in power of two in the method of Mutoh.

The suggestion/motivation for doing so would have been that it would easier to calculate in power of two in computer calculation environment (binary).

Therefore, it would have been obvious to combine Kamon with Mutoh to obtain the invention as specified in claim 4.

D. Claim 8 is rejected under 35 USC 103(a) as being unpatentable over Mutoh (US 2004/0057634) in view of Kim (US 2002/0060676)

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Mutoh teaches all the limitations of claim 6 as applied above from which claim 8 respectively depend.

Mutoh does not teach expressly that the coarse scaler is integrated in connection with the image sensor of a camera and the fine scaler is integrated in the host system.

Kim teaches that the scaler is integrated in connection with the image sensor of a camera and the host system. (Fig 3).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to connect scaler to sensor and host in the apparatus of Mutoh.

The suggestion/motivation for doing so would have been that it would faster scaler with scaling image right out of sensor.

Therefore, it would have been obvious to combine Kim with Mutoh to obtain the invention as specified in claim 8.

E. Claim 10 is rejected under 35 USC 103(a) as being unpatentable over Mutoh (US 2004/0057634) in view of Najand (US Patent 7,203,379).

Mutoh teaches all the limitations of claim 6 as applied above from which claim 10 respectively depend.

Mutoh does not teach expressly the scaling function of at most 4 image-sensor lines for each colour component.

Najand teaches the scaling function of at most 4 image-sensor lines for each colour component. (col. 11 line 64-col. 12 line 11).

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At the time of the invention it would have been obvious to a person of ordinary skill in the art to scaling 4 line at a time in the appartus of Mutoh.

The suggestion/motivation for doing so would have been that it would adjust scaling filter depending on buffer size.

Therefore, it would have been obvious to combine Najand with Mutoh to obtain the invention as specified in claim 10.

F. Claim 11 is rejected under 35 USC 103(a) as being unpatentable over Mutoh (US 2004/0057634) in view of Yang et al. (US 2002/0025084).

Mutoh teaches all the limitations of claim 11 as applied above from which claim 11 respectively depend.

Mutoh does not teach expressly the apparatus is fitted to a mobile station.

Kim teaches the apparatus is fitted to a mobile station (abstract).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to connect scaler to mobile station in the appartus of Mutoh.

The suggestion/motivation for doing so would have been make portable image scaler.

Therefore, it would have been obvious to combine Kim with Mutoh to obtain the invention as specified in claim 11.

***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RANDOLPH CHU whose telephone number is (571)270-1145. The examiner can normally be reached on Monday to Thursday from 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikram Bali can be reached on 571-272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status

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information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Randolph I Chu/

/Anand Bhatnagar/  
Primary Examiner, Art Unit 2624  
October 23, 2010